

TRANSPARENT MOISTURE-RESISTANT GAS BARRIER FILM

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Abstract of JP2003277537

PROBLEM TO BE SOLVED: To provide a transparent gas barrier film which can keep a gas barrier property even under high humidity.

SOLUTION: The transparent gas barrier film is obtained by applying and film-forming, on a transparent resin film, a silica sol solution prepared by using, as a main component, an alkoxysilane compound and a hydrophilic resin composition from 5 to 30% by mass thereto. The transparent gas barrier film is obtained, which is suitable for food packaging without lowering the gas barrier property even under high humidity.

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[0013]

The hydrophilic resin composition in the present invention is a resin composition having a functional group which forms a hydrogen bond with a silanol group produced by a hydrolysis of the alkoxysilane compound. By this reaction, the hydrophilic resin composition inhibits the volume shrinkage caused by polycondensation of the silanol groups, and thus serves to prevent cracks in the coat. The functional group which forms a hydrogen bond with a silanol group is exemplified by a hydroxyl group, a carbonyl group, an amide group, an urea group, an urethane group, an imide group and the like. The suitable resin composition is specifically exemplified by polyethylene glycol, polyvinylpyrrolidon, polyoxazoline, polyN,N-dimethylacrylamide, polyalkylene glycol methacrylate, polyalkylene glycol acrylate and the like, and preferably polyethylene glycol and polyvinylpyrrolidon.

[0014]

In addition, polyethylene glycol methacrylate or polyethylene glycol acrylate, which is a compound wherein a chain end of polyethylene glycol is esterified with acryl acid, may be used. In this case, using it in combination with a photopolymerization initiator allows the improvement in moisture-resistance of the coat by ultraviolet crosslinking.

[0015]

The amount of the hydrophilic resin composition to be added is preferably in the range of 5 to 30 wt%, more preferably in the range of 10 to 20 wt% relative to the alkoxysilane compound. When the amount of the hydrophilic resin composition to be added is less than 5 wt%, it tends to cause cracks after the coat is formed. On the other hand, when the amount exceeds 30 wt%, the thickness of the coat becomes too large and the film tends to get wrinkled.